



Contribution ID: 51

Type: Poster

Direct Estimates of the Wilson Depression with Stereoscopic Observations of SO/PHI and SDO/HMI

We present a method for a direct measurement of the height variations in the solar photosphere based on stereoscopy. Our method calculates differences in altitude of the solar surface by shifting and correlating two images, mapped from the same surface feature observed from two different vantage points. We apply this method to simultaneous continuum intensity observations from Solar Orbiter's Polarimetric and Helioseismic Imager (SO/PHI) and Solar Dynamic Observatory's Helioseismic Magnetic Imager (SDO/HMI) to estimate the Wilson depression of sunspots. We present a description of the calibration and rectification of the observational data and an overview of the correlation method. This stereoscopic method allows for the first time to directly compute height variations on the solar surface. We present the results of the analysis, which yield a Wilson depression of roughly 800 km for the observed sunspot. Finally, we discuss the effect that different parameters, especially the resolution of the data have on the results; and the possible extension of this method's applications.

Primary authors: ROMERO AVILA, Amanda (Max Planck Institute for Solar System Research); Dr INHESTER, Bernd (Max Planck Institute for Solar System Research); Dr HIRZBERGER, Johann (Max Planck Institute for Solar System Research); Prof. SOLANKI, Sami K. (Max Planck Institute for Solar System Research)

Session Classification: Coffee break and poster session 2

Track Classification: Diagnostic tools and numerical methods in solar physics